REMARKS

In response to the Examiner's request for separate temperature information for Heverlee, Belgium, for the relevant period, Applicants advise that they have not been able to obtain temperature information for Heverlee, but that they were able to obtain temperature information for the period June 1 to December 9, 1994 for a neighboring town of Herent, from the "Klimatologisch station Herent (FS33) van het KMI" * ((see enclosed Exhibit A). (*: = the climatological station Herent (FS33) of the KMI [KMI = Koninklijk Meteorologisch Instituut = Royal Meteorological Institute]); (hereinafter KMI)). A translation in English of the origin/provider of the data and of the headings of the provided data are provided in Exhibit B.

Herent is a municipality (a suburb of Leuven [Louvain]) (with the meteorological observation station FS33) that is very close to the municipality of Heverlee (also a suburb of Leuven [Louvain]). Herent is much closer to Heverlee than Ukkel [= region of Brussels] for which the Examiner has provided temperature data for 1994. In this respect, please see map 1 (concerned region of Belgium) and map 2 (Belgium, situation and overview), Exhibits C and D, respectively. The distance from Herent to Heverlee is only about 3 to 4 km, whereas the distance from Ukkel to Heverlee is about 14 km.

From the meteorological data measured at Herent it follows that the daily minimum temperature may be up to about 1° C lower than the daily minimum temperature measured in Ukkel. This difference is believed due to the fact that while both regions are part of mid-Belgium, Ukkel (Brussels) is situated about 15 km closer to the North Sea than Heverlee (Leuven).

As to the period of June 1 to December 9, 1994, the record of the temperatures measured at Herent (conventionally measured by the KMI in thermometer shelter) shows that,

HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE,
SUITE 140
TUCSON, AZ 85718
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

in contrast to the minimum temperatures measured at Ukkel, the minimum temperatures at Herent, and thus logically at Heverlee as well, did indeed drop below – 1°C, namely on October 18 (– 1.1 °C), December 2 (– 1.3°C) and December 3 (– 1.2°C).

Thus it is reasonable to conclude without reasonable doubt that during the growth period of the chicory roots according to Van Den Ende et al., (hereinafter "VDE"), the temperature would have dropped below – 1°C, and this not only in December at the end of the growing period, but also by mid-October.

Triggering of the FEH gene

VDE does not explicitly disclose that the FEH gene was triggered by low temperature conditions occurring during the concerned growth period of the chicory, and do certainly not disclose that the FEH gene was triggered by the particular temperature conditions of below – 1°C.

However, as discovered by Applicants and required by the presently pending claims, the FEH gene in the chicory roots is triggered by a temperature of about – 1°C and lower (description, p.11, lines 11-27 and 28-31). Accordingly, based on the temperature data from the KMI for Herent, it reasonably can be assumed, without question, that during the growth period of the chicory roots in Heverlee disclosed by VDE, the FEH gene had indeed been triggered.

The assumption that the FEH gene had indeed been triggered is further confirmed by VDE, who report that "the FEH activity only significantly increased after October 15, (1994)".[1] This statement about mid-October does correspond well with the occurrence of a temperature below – 1°C on October 18.

[1] VDE, p.47, right column, 2nd half; p.48, right column, paragraph 3, and Fig 4, which even shows the FEH activity based on a measurement on October 18!

HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE,
SUITE 140
TUCSON, AZ 85718
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

Longest period of cultivation

The Examiner notes that the longest cultivation period of VDE (from June 1 to December 6) is 189 days (acknowledged as a period of "188" days in the Decision of the BPAI (no. 2004-1498) on p.7, end of footnote 5), and the Examiner has reopened prosecution following the BPAI's reversal decision based on the assumption that, having already provided evidence that the FEH gene was not triggered by low temperature conditions over a period of 180 days for the Ukkel region, that if he now could obtain confirmation of the applicability of said data to the Heverlee region, that he would have a sound basis to reject the current claims. Said confirmation presumably could be obtained for example in the form of temperature records showing no temperature below –1°C, or by the absence of such records (as a result of which the data for Ukkel could be considered applicable), or by a confirmation of the absence of the occurrence of a temperature below –1°C in the form of a declaration or an acknowledgement from the Applicants.

In this respect, Applicants submit that the KMI temperature data for Herent in combination with the disclosures of VDE unambiguously prove that the assumptions/allegations of the Examiner were erroneous for both aspects, namely (1) the absence of a temperature condition below –1°C, and (2) the absence of FEH gene triggering by said low temperature conditions during the growing period of VDE. Furthermore, the KMI records for Herent clearly provide support for the reasoning followed by the BPAI, and consequently provide support for the patentability of the claimed subject matter.

Even assuming *arguendo* the Examiner attempts to use the KMI temperature records for Herent in combination with the disclosures of VDE (particularly Fig 4 and the statement about the significant increase of FEH activity after October 15), to show that the triggering of the

HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE,
SUITE 140
TUCSON, AZ 85718
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

FEH gene by a temperature of – 1°C and the effect thereof on the inulin in the chicory roots is clearly taught by VDE, Applicants submit such conclusion of the Examiner would not be justified, because:

(i) it would be based on hindsight,

(ii) the fact that a phenomenon is observed, i.e., a significant increase in FEH activity from about 15 October onwards, does not mean that it is necessarily to be brought in connection with the triggering of the FEH gene by a well-defined lower temperature (below about –1°C) (unless by hindsight), because from VDE Fig 4 clearly follows that already from about October 1 (thus long before the temperature dropped below –1°C on October 18) the activity of the FEH gene started to increase, and

(iii) the observation of an increase of FEH activity as such does not inevitably lead the skilled person to the subject invention (which is based on the feature that chicory roots can be grown, harvested and stored at least partially outside the conventional period, resulting in the possibility to have a longer growing period and/or a supply period more spread in time of the chicory roots source material for the manufacturing of inulin, inulin hydrolysates and inulin derivatives).

Furthermore, the link between said observation and the disclosed metabolic data concerning inulin in chicory roots (studied in view of the use of the roots for the production of witloof), on the one hand, and the industrial application of said observation and metabolic data for the use of chicory roots (cultivated at least partially outside the conventional cultivation period) for the manufacturing of inulin, inulin hydrolysates and inulin derivatives, on the other hand, is clearly not taught by VDE. Hence, the link is not obvious in view of VDE in combination with the KMI records.

HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE,
SUITE 140
TUCSON, AZ 85718
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

Turning to the art rejection, the Examiner in large part parrots his earlier rejection that was reversed by the BPAI. Applicants respond as follows:

Considering first the rejection of claims 65-70, 72-78 and 89-97 as obvious from Yamazaki et al. in view of VDE and the newly cited Institut Royal Meteorologique de Belgique report (hereafter the "Institute Report"), the primary reference Yamazaki relates to the production of "sweet fructose-containing syrups, also containing fructooligosaccharides (...) by the partial or substantially complete hydrolysis of inulin", and to the product so produced. Yamazaki essentially relates to one aspect of the production, namely the process for converting inulin into a fructose/oligofructose syrup. Further objects of the invention disclosed by Yamazaki also relate essentially to said process. (US '377, Abstract; Col.1, lines 5-8; Col. 10, lines 19-22; Col. 10, lines 23-34; Col. 10, lines 35-56; claim1 and claims 2 -19).

The source material for the process of Yamazaki is an aqueous inulin solution derived by extraction from tubers of J. artichoke, chicory roots or dahlia tubers (US '377, Col. 10, lines 36-40; Col.10, line 58 to Col.11, line 7; Col.12, lines 21-27; and Col.12, lines 46-51).

Applicants emphasize that Yamazaki does not in fact relate to a process for the production of inulin, but rather to a process for the production of fructose / oligofructose syrup. The inulin solution derived from plant material in the first step (a) of the Yamazaki process is indeed used, without isolation of the inulin, as source material for the preparation of the fructose/oligofructose syrup. The invention disclosed by Yamazaki thus essentially resides in steps (b) to (d) of the process, namely (b) passing said aqueous inulin solution through a column containing a strong acid cation-exchange resin, (c) hydrolysing the effluent at 70-100°C, (d) passing the hydrolysate through a column containing a weak base anion-exchange

HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE,
SUITE 140
TUCSON, AZ 85718
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

resin, and (e) concentrating the effluent of step (d) to a syrup (Col. 10, lines 35-50 and Col.10, line 57 to Col. 11, line 60).

The only disclosures in Yamazaki regarding the plant sources for inulin are generic, background disclosures, found in the "Generalized description of the invention", namely:- that "J. artichoke, a native plant of Canada, grows well in colder climates (even in waste lands) and provides a high yield of inulin in its tubers" (US '377, Col. 12, lines 3-5) *- and that "J. artichoke tubers can be efficiently produced and harvested in late October and ideally should be processed within a few months (inulin content declines with storage time)" (US '377, Col. 12, lines 21-24).[2]

Clearly, Yamazaki does not teach the provision of particular source material for inulin extraction, but only mentions, as technological background, some general information regarding the conventional plant sources, J. artichoke, chicory roots and dahlia tubers, and about the cultivation of J. artichoke.

Applicants emphasize that Yamazaki only discloses conventional plant material as source material and does not contain any disclosure, any teaching, or any incentive for the skilled person regarding the cultivation partially or completely outside conventional growing periods of plant source material, particularly chicory roots, for the production of inulin, inulin hydrolysates or inulin derivatives. The use of chicory roots cultivated in a particular manner as source material constitutes in fact an essential feature of Applicants' claimed invention.

[2] No details are given by Yamazaki about the term "colder climates", nor about the growing, harvesting and storage period, nor about the region and climate conditions during said growing, harvesting and storage period in Canada, nor about their effect on the inulin).- that " While inulin from J. artichoke tubers is the preferred source according to the aspects of the invention, the inulin may also be derived in a similar fashion, from the roots of chicory or dahlia" (US '377, Col. 12, lines 24-27). However, no details about the cultivation, harvesting or storage before processing of the chicory roots are given.

HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE,
SUITE 140
TUCSON, AZ 85718
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

The secondary reference VDE reports on a study of inulin synthesis and inulin catabolism in chicory roots cultivated and processed under conditions conventionally used for the production of Belgian endives. VDE particularly relates to a study of the presence, activity and interaction of inulin-synthesising and inulin-degrading enzymes occurring in chicory roots during growth, storage and forcing of the roots in view of the production of Belgian endives (witloof). VDE clearly does not teach or support the cultivation of chicory roots as source material for the production of inulin or the inulin hydrolysates fructose and oligofructose (VDE, p. 43, Summary; p.44, left col., paragraph starting line 3 and including last paragraph "Plant material").

Apart from particulars concerning the evolution of inulin synthesis and inulin catabolism under conventional conditions of growth, cold storage (at 1°C) and forcing (at 16°C) of the roots, VDE merely confirms conventional knowledge that inulin is synthesized in chicory roots during the growing season, that inulin already starts degrading from mid-September onwards, and is increasingly degrading from mid October (thus even before the end of the growing season at about the end of October, marked by a cessation of the increase of the biomass of the chicory roots), and further degrades during harvesting, cold storage and forcing (VDE, p.44, paragraph starting line 3; P.47, left column, last sentence; Fig. 3, Fig.4 and Fig.5; and subject patent application Description p. 8, line 20 to p.9, line 7).

Accordingly, it is clear that VDE does not relate at all to the cultivation of chicory roots as source material for the manufacture of inulin, inulin hydrolysates or inulin derivatives, and that VDE does not contain any disclosure, teaching or incentive for the skilled person about the possibility to cultivate chicory roots as source material for the production of inulin, inulin

HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE,
SUITE 140
TUCSON, AZ 85718
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

hydrolysates, or inulin derivatives, partly or completely outside the conventional cultivation period.

Furthermore, VDE does not contain any disclosure about the triggering of the FEH gene and its inulin degrading activity as a result of particular low-temperature conditions.

Additionally, VDE does not contain any teaching or suggestion about the Applicants' findings that low temperature conditions that trigger the FEH gene may occur in a well-defined early stage of the growing period of the chicory roots without having negative effects on the cultivation of the chicory roots later on (e.g., on yield of the roots and/or on inulin synthesis, inulin content and degree of polymerization (DP) of the inulin). It is thus highly surprising and non-obvious that once the FEH gene has been triggered by low temperature conditions early in the growing season, the inulin degrading activity of the triggered FEH gene is not reflected by the absence of inulin synthesis later on in the growing period, particularly the synthesis of inulin of high DP, such as DP>10 and DP>20.

VDE does not contain any disclosure or teaching that, according to the subject invention, a growing period for chicory roots at least partially outside the conventional period and possibly longer than the conventional growing period is possible with good results as to yield of roots, inulin content and DP of the inulin. VDE does not contain any teaching or suggestion for the skilled person to consider the cultivation of chicory roots as source material for the production of inulin, inulin hydrolysates and inulin derivatives at least partially outside the conventional period with a reasonable expectation of success. The teaching of VDE is rather to the contrary. Thus, VDE in fact teaches away from cultivating chicory roots in a period wherein low temperature conditions that trigger the FEH gene (namely –1°C or below) may occur, and consequently VDE teaches away from the claimed subject invention.

HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE,
SUITE 140
TUCSON, AZ 85718
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

The newly cited Institute Report does not supply the missing teachings. In fact, as noted *supra*, the newly cited Institute Report is for a different locale. Thus, no combination of Yamazaki et al., VDE and the Institute Report would achieve or render obvious claim 65 or any of the claims that depend on or are linked to claim 65.

Applicants' claimed processes for the manufacture of inulin, inulin hydrolysates and inulin derivatives are distinguished from conventional processes in the use of a particular claimed source material. It is the use of the particular claimed source material that constitutes the improvement and the inventive feature of the claimed invention. None of the applied art teach the particular claimed source material. Yamazaki starts with conventional chicory roots source material. VDE does not relate to the production of inulin, hydrolysates and derivatives of inulin, and Van Loo only relates to a process for removing the saccharides of DP< 5 from polydisperse saccharides (inulin).

These prior art documents clearly do not relate to the use of chicory roots that have been cultivated at least partially outside the conventional period as source material for the manufacture of inulin, hydrolysates and derivatives of inulin as required by Applicants' claimed invention.

Besides, neither Yamazaki, nor VDE, nor Van Loo, contain any incentive for the skilled person to combine them as the Examiner suggests. And even when combining said references, the skilled person would not read nor could read in that combination a teaching towards the subject claimed invention.

Furthermore, the meteorological records of the KMI for Ukkel and in particular those for Herent, taken as such, or even taken in combination with Yamazaki and /or VDE would not teach the claimed invention or provide an incentive to the skilled person to try with a

HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE,
SUITE 140
TUCSON, AZ 85718
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

reasonable expectation of success to cultivate chicory roots at least partially outside the conventional cultivation period for use as source material for the production of inulin, hydrolysates or derivatives of inulin, in accordance with the subject invention.

Accordingly, it is Applicants' contention that neither Yamazaki, nor VDE, taken alone or in combination, nor taken in combination with Van Loo et al. and/or taken in combination with the KMI temperature records for Ukkel or Herent, disclose, teach or suggest to the skilled person the present invention, nor give any incentive to the skilled person to cultivate chicory roots at least partially outside the conventional cultivation, harvesting and storage period, for their use as source material as in the subject claimed processes.

Summarizing to this point, neither Yamazaki, nor VDE, nor the combination thereof, nor even their combination with the temperature records from the KMI, disclose or teach the skilled person the essential feature of the presently claimed processes, namely the possibility to cultivate, harvest and process chicory roots under conditions that at least partially fall outside the conventional period and to use these chicory roots as source material in the manufacturing processes according to the present invention.

Yamazaki does not teach a method for the manufacture of (isolated) inulin, but essentially relates to a method for the manufacture of inulin hydrolysates, and does not provide detailed, enabling information about the cultivating conditions for J. artichoke as source material, and no supported information in respect of the applicability of this information for growing chicory roots as source material for the manufacture of inulin.

The Examiner acknowledges, and Applicants agree, that Yamazaki does not teach the claimed periods for growing, harvesting and processing chicory root. (Office Action at page 5).

HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE,
SUITE 140
TUCSON, AZ 85718
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

Applicants, however respectfully disagree with the Examiner's statement at page 6 of the Office Action that VDE teaches a process for synthesizing fructan (inulin) from chicory roots. Applicants point out, as detailed above, that VDE in fact only relates to a study about the anabolism and metabolism of inulin in chicory roots and the effect of the root enzymes on said anabolism and metabolism, and this only in view of the production of Belgian endive.

VDE clearly does not relate, does not disclose, and does not teach the manufacture of inulin, inulin hydrolysates or inulin derivatives from chicory roots.

As to the growing period for chicory roots of 189 days disclosed by VDE, it has to be noted that this growing period does not correspond to the growing period according to the current claims, because the low temperature condition of –1°C did occur on October 18, 1994 (see KMI data for Herent) which is within the period from the beginning of the third month of the growing period till the end of the processing of the chicory roots. In this respect, Applicants emphasize that all features of a claim have to be taken as a whole, thus defining and delimiting the claimed subject matter.

Furthermore, Applicants respectfully disagree with the Examiner's suggestion that it would have been prima facie obvious for the skilled person at the time the subject invention was made, to combine the teaching from Yamazaki, VDE, and the temperature records of the KMI, to come to the subject invention, because, as detailed above, (i) VDE does not relate to the field of the manufacture of inulin, hydrolysates and derivatives thereof, (ii) there was no incentive for the skilled person in Yamazaki, VDE and KMI to combine said disclosures, (iii) said combination would not be obvious for the skilled person, and (iv) said combination would not lead to the subject invention.

HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE,
SUITE 140
TUCSON, AZ 85718
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

Even if one would admit merely as a working hypothesis that the effect of low temperatures is a limiting parameter for the synthesis/degradation of the inulin in chicory roots, known from the prior art, then there was still no disclosure or teaching present in the prior art about the fact that the FEH gene is triggered by a particular low temperature, nor that said low temperature may occur and consequently the FEH gene may be triggered during a certain, well defined period of the growing period of the chicory roots without negatively affecting later on the yield of chicory roots biomass, the inulin synthesis in the chicory roots, and the DP of the inulin.

Besides, Applicants submit that even knowing the degrading effect of frost on the cells of chicory roots (which admittedly is common knowledge) and the degrading effect of low temperature on the inulin content and inulin DP in chicory roots (from VDE), then the prior art did not contain neither any incentive for the skilled person to consider and try to cultivate chicory roots for use as source material for the production of inulin, inulin hydrolysates and inulin derivatives, at least partially outside the conventional periods and possibly even during certain periods wherein frost may occur.

Clearly, the skilled person could not find any incentive in the prior art and had no expectation of success based on common knowledge, (i) to try to cultivate chicory roots for use as source material for the manufacture of inulin, hydrolysates and derivatives of inulin, outside the conventional period, nor (ii) to try to optimize the conventional cultivation of chicory roots by mere routine experiments to arrive at a cultivation period at least partially outside the conventional period in accordance with the subject invention.

In view of the above, Applicants submit that the present invention and the subject matter of the current claims are non-obvious for the skilled person in view of the prior art, and

HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE,
SUITE 140
TUCSON, AZ 85718
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

that allegations that the present invention and the claimed subject matter are obvious in view of a combination of Yamazaki, VDE and KMI are not justified and/or based on hindsight.

Furthermore, Applicants point to secondary considerations that support the non-obvious character of the invention and claimed subject matter, namely the long felt need for an improved method for the production of inulin, hydrolysates and derivatives, including various aspects thereof, such as (i) growing, harvesting and storage/processing of plant source material spread over a longer period of the year, and (ii) the average DP of the inulin (description, p.9, lines 8-31). Furthermore, as indicated in the description (p. 24, line1 to p. 25, line 24), the technical and economical advantages of the present invention are considerable.

According to the present invention, the seeding, growing, harvesting/storing /processing period may be much longer than the conventional period and may even extend over a whole year, provided that the requirements as to time period of occurrence of the particular low temperature conditions are fulfilled. The invention enables the processor to have a supply of chicory roots source material spread over a large part of the year, even over a complete year. This in turn enables to downsize a processing plant for the production of a given yearly output of inulin, hydrolysates and derivatives of inulin, and hence to exploit such plant over a longer period of the year, even over a complete year, which makes the exploitation of the plant more efficient and economically much more attractive. (see Description p.24, line 33 to p.25, line 24).

In this respect, Applicants wish to inform the Examiner that based on the subject invention and in order to exploit the resulting technological and economical advantages,

HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE,
SUITE 140
TUCSON, AZ 85718
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

ORAFTI Chile, a business unit of the assignee, is presently constructing an inulin production plant in Chile.[3]

Turning to the rejection of claims 79-88 as obvious from Yamazaki et al. in view of VDE and the Institute Report and further in view of Van Loo, claims 79-88 are all linked to and are dependent on claim 65. The deficiencies of the combination of the primary reference Yamazaki et al. taken with VDE and the newly cited Institute Report vis-à-vis claim 65 are discussed above. Van Loo does not supply the missing teachings to this combination to achieve or render obvious claim 65 or any of claims 79-88 which dependent directly or indirectly on claim 65.

Van Loo merely relates to a method for processing a polydisperse saccharide composition, typically inulin, whereby an aqueous solution of said polydisperse composition comprising mono-, di-, oligo-, and polysaccharides is fed in a metastable state into a chromatography column, and then by elution with warm water is separated into various fractions, thus providing a fraction of the saccharide (typically inulin) that is essentially free from saccharides of a DP less than or equal to 2, with only minor remaining amounts of oligosaccharides of DP < 5.

Accordingly, Van Loo clearly does not supply the missing teachings to the combination of Yamazaki et al., VDE and the newly cited Institute Report, and Van Loo is not related to, nor discloses, nor teaches the essential feature of the claimed subject invention which involves the use of chicory roots, that have been cultivated under conditions that partly or completely fall outside conventional cultivation and harvesting conditions, as source material for the

HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE, SUITE 140
TUCSON, AZ 85718
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

[3] A sworn declaration will be filed if called for by the Examiner, attesting to the foregoing.

manufacture of inulin, inulin hydrolysates and inulin derivatives, as appears from the current main process claims.

Applicants also wish to point out that, whereas claims 79 – 88 read on high performance inulin and improved high performance inulin with an average DP [($\overline{DP}$)] of at least 20, and about free from fructooligosaccharides of DP < 10, Van Loo relates to and discloses a chromatographic method for the separation of mono- and di- and oligo -(DP<5)- saccharides from polydisperse polysaccharides, yielding a polysaccharide, typically inulin, that is largely free from mono-, di-, tri- tetra- and penta-saccharides (see US 5,660,872, Col. 5, lines 22-44; Col. 6, line 50 to Col 8, line 36, and example 1).

So, in contrast with the high performance inulin of claims 79 – 88 which is prepared by a directed crystallization process according to WO 96/01849*, and which contains only very minor remaining amounts mono-, di-, and oligo (DP<10)-saccharides, the product obtained by the method of Van Loo** still contains considerable amounts of oligosaccharides of a DP 5 to 9.

(*: corresponding to US 6,303,778, see Col. 6, lines 56-67, Col.7, lines 33-60; and Fig 3 [excerpt enclosed as Doc.3])

(** US 5,660,872, Col. 4, lines 15-22; Col. 5, lines28-35; Col. 11, example 1, particularly Col. 12, table I).

The inulin product according to Van Loo is thus clearly different from the inulin product of claims 79 – 88.

Accordingly, Van Loo, taken in combination with Yamazaki and VDE and the newly cited Institute Report, does not teach or render obvious the essential features of the presently claimed invention.

HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE, SUITE 140
TUCSON, AZ 85718
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

Applicants submit that supporting the alleged obviousness of claims 79 – 88 by referring to Van Loo is erroneous.

In summary, Applicants submit that the essential feature of the claimed processes is not the conventional manufacturing technique applied to prepare the inulin, inulin hydrolysate or inulin derivative, referred to in the current claims, but the new and non-obvious use as source material in those claimed methods particular chicory roots, namely chicory roots that have been grown, harvested and stored/processed under particular, new and non-obvious conditions defined in the claims.

Turning to the specific points raised by the Examiner in response to the BPAI decision, the various points have already been dealt with above, namely:

- the minimum temperature issue: the KMI records for Herent evidence that a temperature of below – 1°C occurred during the chicory growing period of VDE;
- the growing period of 189 days in the experiment of VDE: Applicants emphasize that VDE does not read on all the features of the claimed subject matter taken as a whole, because *inter alia* the temperature conditions for VDE were such that the temperature has dropped below –1°C already on October 18 (KMI records for Herent) and thus have triggered the FEH gene. Accordingly, the 189 period of VDE does not meet all the elements of the current claims;
- the triggering of the FEH gene during the growing period by low temperature conditions: the temperature records from the KMI for Herent provide evidence that FEH triggering temperature conditions occurred during the growing period of the chicory roots in the VDE experiment (see our comments just above, and

HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE,
SUITE 140
TUCSON, AZ 85718
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

the comments regarding VDE on this respect made above in chapter A and chapter B);

- as to In Re Cruciferous Sprout Litigation: Applicants point out that in the present case not all elements of the claims (e.g., main method claim 65) were disclosed in or known from the prior art. Indeed, the claim features taken as a whole (= all the claim features taken in the claimed combination, which in fact delimits the claimed invention from the prior art) explicitly exclude full overlapping with the prior art, e.g., with respect to the length of the growing, harvesting, and processing period in combination with the temperature conditions requiring that the FEH gene is not triggered in a well-defined period of said growing; harvesting, and processing period.

Accordingly, the current claims clearly comply with the requirements for novelty (which was apparently at stake in" Re Cruciferous ...."). Besides, in view of the absence of any evidence to the contrary, the combined features of the subject claims in the claimed combination can not be held to cover subject matter that was inherently disclosed in or taught by the prior art.

The fact that the chicory roots according to the present invention are seeded/grown/processed partially or wholly outside the conventional periods makes that the claimed subject matter is essentially different from the one of the prior art. Therefore, Applicants submit that the cited court decision "In re Cruciferous Sprout Patent" is not relevant for the subject invention.

Thus, in view of the absence of any disclosure, any teaching and any incentive for the skilled person in the prior art, pointing to the claimed invention or inciting the skilled person to

HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE, SUITE 140
TUCSON, AZ 85718 ,
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

develop, without undue burden and with a reasonable expectation of success, the subject invention by routing optimalization experiments, the claimed subject matter has to be considered non-obvious.

Accordingly, Applicants submit that in "Re Cruciferous" is not relevant for the claimed subject invention.

Having regard to the above, Applicants respectfully submit that the decision of the BPAI, even in view of the submitted temperature records from the KMI for Ukkel and for Herent, appears correct. The temperature records from the KMI for Herent appear in fact to provide sound support for the BPAI decision.

Having dealt with all the objections raised by the Examiner, the Application is believed to be in order for allowance.

In the event there are any fee deficiencies or additional fees are payable, please charge them (or credit any overpayment) to our Deposit Account Number 08-1391.

Respectfully submitted,

Norman P. Soloway
Attorney for Applicants
Reg. No. 24,315

Attachments:
Exhibits A through D

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: MAIL STOP AMENDMENT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on October 3, 2005, at Tucson, Arizona.

By M. Diane Dubé

NPS:dd

HAYES SOLOWAY P.C.
3450 E. SUNRISE DRIVE,
SUITE 140
TUCSON, AZ 85718
TEL. 520.882.7623
FAX. 520.882.7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL. 603.668.1400
FAX. 603.668.8567

A

HERENT

WAARNEMINGEN VAN HET KLIMATOLOGISCH STATION HERENT (FS33) VAN HET K.M.I.

Lambertcoordinaten station Herent (X :169929 Y:177100)
De waarnemingen worden verricht om 8u lokale tijd.
Bron : Bodemkundige Dienst van België, Heverlee.

DATUM			Tmax (°C)	Tmin (°C)
1	1	1994	5.0	1.6
2	1	1994	9.6	1.3
3	1	1994	10.2	4.5
4	1	1994	8.6	5.2
5	1	1994	9.4	3.5
6	1	1994	8.4	5.0
7	1	1994	5.5	4.0
8	1	1994	6.2	.9
9	1	1994	6.1	-1.4
10	1	1994	6.8	1.1
11	1	1994	8.0	4.5
12	1	1994	13.4	5.0
13	1	1994	10.9	7.9
14	1	1994	8.8	6.8
15	1	1994	5.7	3.9
16	1	1994	5.5	-1.4
17	1	1994	2.2	-4.0
18	1	1994	3.4	-3.9
19	1	1994	2.8	.0
20	1	1994	5.3	.1
21	1	1994	6.0	-.4
22	1	1994	10.1	2.6
23	1	1994	10.6	5.8
24	1	1994	10.2	4.3
25	1	1994	11.5	4.7
26	1	1994	8.6	4.8
27	1	1994	11.0	5.2
28	1	1994	6.4	3.8
29	1	1994	7.6	.0
30	1	1994	8.5	1.0
31	1	1994	8.2	2.8
1	2	1994	8.0	2.5
2	2	1994	7.5	3.4
3	2	1994	7.9	1.4
4	2	1994	7.8	2.5
5	2	1994	7.4	3.4
6	2	1994	9.3	3.7
7	2	1994	7.8	1.9
8	2	1994	7.6	2.5
9	2	1994	6.8	1.4
10	2	1994	7.8	3.9
11	2	1994	5.4	2.0
12	2	1994	4.1	.9
13	2	1994	.2	-1.1
14	2	1994	-.2	-7.4
15	2	1994	3.6	-5.9
16	2	1994	8.2	-1.0
17	2	1994	3.8	-6.3
18	2	1994	6.0	-6.4
19	2	1994	5.9	-5.8

HERENT

20	2	1994	-1.1	-5.1
21	2	1994	.2	-9.7
22	2	1994	1.6	-7.9
23	2	1994	5.2	-2.1
24	2	1994	7.6	-.2
25	2	1994	7.2	1.6
26	2	1994	12.4	1.7
27	2	1994	12.7	7.3
28	2	1994	13.8	6.9
1	3	1994	8.4	6.5
2	3	1994	9.6	3.1
3	3	1994	10.7	2.8
4	3	1994	11.6	2.7
5	3	1994	15.2	2.7
6	3	1994	11.0	3.5
7	3	1994	10.6	4.9
8	3	1994	13.2	7.8
9	3	1994	15.8	9.4
10	3	1994	12.0	7.7
11	3	1994	13.4	-.9
12	3	1994	11.0	2.0
13	3	1994	12.0	6.2
14	3	1994	11.9	6.2
15	3	1994	10.9	7.3
16	3	1994	9.2	4.3
17	3	1994	8.6	3.4
18	3	1994	9.4	2.8
19	3	1994	9.2	2.7
20	3	1994	9.0	-2.9
21	3	1994	11.1	.2
22	3	1994	10.5	-1.3
23	3	1994	14.0	.8
24	3	1994	13.4	10.3
25	3	1994	12.1	7.4
26	3	1994	9.3	4.4
27	3	1994	10.5	-1.5
28	3	1994	13.6	-1.3
29	3	1994	15.2	7.2
30	3	1994	20.7	8.9
31	3	1994	14.4	8.0
1	4	1994	11.9	7.9
2	4	1994	8.9	4.4
3	4	1994	10.4	1.8
4	4	1994	13.6	2.2
5	4	1994	6.9	2.7
6	4	1994	10.4	2.7
7	4	1994	10.9	.8
8	4	1994	10.0	2.4
9	4	1994	7.8	3.8
10	4	1994	11.2	-.2
11	4	1994	14.1	1.3
12	4	1994	15.2	4.0
13	4	1994	12.7	5.3
14	4	1994	10.3	4.6
15	4	1994	10.2	2.8
16	4	1994	15.8	5.1
17	4	1994	12.8	5.4
18	4	1994	12.0	2.7
19	4	1994	11.8	-1.1

HERENT

20	4	1994	13.6	.2
21	4	1994	16.2	3.3
22	4	1994	20.2	6.0
23	4	1994	21.8	8.6
24	4	1994	20.7	9.2
25	4	1994	15.3	9.9
26	4	1994	16.2	6.2
27	4	1994	17.8	9.3
28	4	1994	21.2	12.2
29	4	1994	24.2	8.7
30	4	1994	22.2	11.4
1	5	1994	15.5	4.5
2	5	1994	17.3	.6
3	5	1994	23.8	3.6
4	5	1994	16.8	8.9
5	5	1994	15.0	7.7
6	5	1994	15.2	9.0
7	5	1994	23.4	12.0
8	5	1994	13.6	12.8
9	5	1994	17.3	7.0
10	5	1994	17.2	5.3
11	5	1994	22.2	6.1
12	5	1994	20.4	9.2
13	5	1994	21.9	8.8
14	5	1994	20.6	10.4
15	5	1994	22.5	12.5
16	5	1994	22.1	11.7
17	5	1994	19.0	12.9
18	5	1994	19.8	8.3
19	5	1994	17.1	9.4
20	5	1994	16.2	6.2
21	5	1994	19.8	10.0
22	5	1994	17.5	11.7
23	5	1994	19.3	11.8
24	5	1994	15.8	8.2
25	5	1994	15.8	10.1
26	5	1994	13.2	10.1
27	5	1994	13.2	8.2
28	5	1994	14.4	6.7
29	5	1994	15.4	8.7
30	5	1994	16.9	2.1
31	5	1994	20.8	3.3
1	6	1994	27.7	6.1
2	6	1994	18.3	12.9
3	6	1994	18.1	13.1
4	6	1994	13.9	10.7
5	6	1994	16.1	8.3
6	6	1994	15.0	8.5
7	6	1994	18.7	11.1
8	6	1994	20.4	8.4
9	6	1994	15.4	7.0
10	6	1994	16.0	10.6
11	6	1994	17.4	8.8
12	6	1994	20.2	6.1
13	6	1994	21.6	8.5
14	6	1994	23.6	8.7
15	6	1994	21.4	7.6
16	6	1994	19.8	11.6
17	6	1994	21.9	12.7

HERENT

18	6	1994	25.6	13.0
19	6	1994	25.0	12.5
20	6	1994	21.3	11.8
21	6	1994	21.6	12.5
22	6	1994	22.3	15.5
23	6	1994	23.4	9.8
24	6	1994	30.6	12.2
25	6	1994	24.4	15.6
26	6	1994	24.4	17.0
27	6	1994	26.0	13.6
28	6	1994	30.5	13.5
29	6	1994	24.8	17.1
30	6	1994	25.0	9.5
1	7	1994	28.6	12.6
2	7	1994	32.2	16.1
3	7	1994	30.5	16.4
4	7	1994	29.7	18.8
5	7	1994	21.0	14.1
6	7	1994	20.9	11.6
7	7	1994	20.2	13.2
8	7	1994	21.0	9.2
9	7	1994	23.4	9.3
10	7	1994	27.4	12.0
11	7	1994	30.3	13.0
12	7	1994	33.0	17.3
13	7	1994	31.6	18.2
14	7	1994	24.5	17.2
15	7	1994	25.7	15.8
16	7	1994	27.0	13.7
17	7	1994	26.8	16.8
18	7	1994	25.0	15.7
19	7	1994	27.4	14.7
20	7	1994	27.5	12.2
21	7	1994	29.4	15.5
22	7	1994	30.0	18.4
23	7	1994	30.9	15.9
24	7	1994	35.2	16.8
25	7	1994	27.8	19.2
26	7	1994	31.7	16.0
27	7	1994	32.0	17.8
28	7	1994	26.9	19.8
29	7	1994	26.7	17.2
30	7	1994	34.0	18.2
31	7	1994	32.2	18.5
1	8	1994	24.4	18.4
2	8	1994	27.7	13.7
3	8	1994	31.5	16.0
4	8	1994	35.4	17.9
5	8	1994	27.3	18.4
6	8	1994	26.5	17.6
7	8	1994	26.1	16.5
8	8	1994	25.1	14.4
9	8	1994	26.3	10.9
10	8	1994	25.4	13.7
11	8	1994	22.1	14.4
12	8	1994	18.3	15.2
13	8	1994	19.1	11.2
14	8	1994	20.1	8.2
15	8	1994	21.3	5.2

HERENT

16	8	1994	25.2	8.0
17	8	1994	20.0	12.4
18	8	1994	20.1	10.4
19	8	1994	20.4	14.1
20	8	1994	20.3	13.4
21	8	1994	23.2	12.1
22	8	1994	27.0	13.1
23	8	1994	26.0	17.4
24	8	1994	21.4	14.3
25	8	1994	22.4	13.2
26	8	1994	22.0	13.1
27	8	1994	20.2	14.1
28	8	1994	20.3	12.3
29	8	1994	20.8	11.0
30	8	1994	21.4	11.0
31	8	1994	23.4	8.6
1	9	1994	19.7	9.8
2	9	1994	19.7	13.7
3	9	1994	21.7	13.1
4	9	1994	22.4	13.7
5	9	1994	21.1	14.3
6	9	1994	17.5	9.6
7	9	1994	16.1	10.0
8	9	1994	19.8	12.2
9	9	1994	16.6	10.5
10	9	1994	17.6	11.4
11	9	1994	17.9	9.2
12	9	1994	21.4	10.1
13	9	1994	19.6	10.7
14	9	1994	14.6	10.6
15	9	1994	14.7	8.0
16	9	1994	13.8	10.6
17	9	1994	13.2	8.1
18	9	1994	16.2	8.6
19	9	1994	15.4	10.2
20	9	1994	11.8	9.6
21	9	1994	17.5	9.8
22	9	1994	19.6	9.6
23	9	1994	21.8	9.1
24	9	1994	22.3	9.2
25	9	1994	23.6	12.4
26	9	1994	21.5	11.4
27	9	1994	18.6	12.4
28	9	1994	18.1	9.0
29	9	1994	17.6	9.1
30	9	1994	19.9	7.7
1	10	1994	18.1	9.4
2	10	1994	17.4	12.5
3	10	1994	15.7	12.8
4	10	1994	10.5	3.6
5	10	1994	13.1	4.5
6	10	1994	14.3	3.4
7	10	1994	13.2	4.6
8	10	1994	13.0	.6
9	10	1994	16.2	3.0
10	10	1994	18.2	3.1
11	10	1994	17.9	3.6
12	10	1994	18.5	2.3
13	10	1994	15.6	3.0

HERENT

14	10	1994	20.5	1.5
15	10	1994	20.9	2.4
16	10	1994	12.5	8.7
17	10	1994	11.3	3.2
18	10	1994	12.3	-1.1
19	10	1994	17.2	.7
20	10	1994	16.9	5.2
21	10	1994	15.0	6.5
22	10	1994	16.0	8.3
23	10	1994	16.7	12.6
24	10	1994	14.7	8.9
25	10	1994	13.3	7.9
26	10	1994	13.1	6.9
27	10	1994	9.7	6.7
28	10	1994	12.8	5.8
29	10	1994	13.9	4.6
30	10	1994	15.6	5.5
31	10	1994	14.4	13.7
1	11	1994	14.4	9.8
2	11	1994	13.6	3.9
3	11	1994	19.4	4.7
4	11	1994	20.8	9.4
5	11	1994	17.8	11.4
6	11	1994	14.5	10.9
7	11	1994	12.8	7.6
8	11	1994	16.4	6.0
9	11	1994	13.0	6.1
10	11	1994	12.2	6.5
11	11	1994	13.7	8.7
12	11	1994	14.0	8.9
13	11	1994	14.5	9.7
14	11	1994	14.8	10.6
15	11	1994	14.2	12.2
16	11	1994	12.2	8.9
17	11	1994	10.9	6.7
18	11	1994	11.1	8.7
19	11	1994	15.0	7.0
20	11	1994	15.4	10.0
21	11	1994	11.5	7.8
22	11	1994	14.4	8.1
23	11	1994	15.0	8.0
24	11	1994	12.5	8.1
25	11	1994	10.7	3.8
26	11	1994	12.8	5.4
27	11	1994	11.5	10.6
28	11	1994	11.5	9.1
29	11	1994	8.1	6.7
30	11	1994	4.3	1.0
1	12	1994	6.5	-1.0
2	12	1994	7.6	-1.3
3	12	1994	13.4	-1.2
4	12	1994	14.1	7.2
5	12	1994	11.2	9.1
6	12	1994	9.1	6.0
7	12	1994	10.7	4.6
8	12	1994	11.4	6.0
9	12	1994	7.8	6.3
10	12	1994	13.7	.7
11	12	1994	14.8	1.8

HERENT

12	12	1994	13.4	11.8
13	12	1994	13.2	11.7
14	12	1994	7.8	1.4
15	12	1994	4.0	-1.4
16	12	1994	5.5	-.8
17	12	1994	6.5	2.7
18	12	1994	7.4	2.3
19	12	1994	8.1	2.8
20	12	1994	6.1	1.2
21	12	1994	5.1	.4
22	12	1994	3.1	.6
23	12	1994	2.1	-1.8
24	12	1994	-3.1	-6.5
25	12	1994	.8	-5.6
26	12	1994	10.6	-3.6
27	12	1994	13.0	.7
28	12	1994	13.8	9.8
29	12	1994	11.8	10.7
30	12	1994	8.1	6.5
31	12	1994	6.5	5.0

Ref.: TIENSE RAFF.26 PRAFF 26/US.w Attachment Letter JH-2-5-231 of Sept. 29, 2005
Pat. Appl. USSN 09/600,732

DOC. 1A

TRANSLATION OF E-MAIL

Subject : Climatologically data Herent
Date sent : 21 september 2005, 16:07:32
From : Walter Boon wboon@bdb.be
To : Johny Hermans <johny.Hermans@orafti.com

Dear Mr. Hermans,

In attachment the file with the climatologically data (Tmin and Tmax, daily) from the station of Herent for the year 1994.
Invoice follows.

Best Regards,

Walter Boon

Bodemkundige Dienst van België (= Soil Science Institute of Belgium)
Willem de Croylaan 48
3001 Heverlee
Phone : + 32 16 31 09 22
Fax : + 32 16 22 42 06
.....

HERENT

OBSERVATIONS OF THE CLIMATOLOGICALLY STATION HERENT (FS33) OF THE K.M.I.

Lambert coordinates station Herent (X : 169929 Y : 177100)
The observations are carried out at 8 h. local time.
Source : Bodemkundige Dienst van België, Heverlee. *
* : = Soil Science Institute of Belgium, Heverlee

Date	Tmax (°C)	Tmin (°C)

.....